



M920-CF
Industrial
Video Eyewear

Icuiti Corporation
2166 Brighton-Henrietta Townline Rd.
Rochester, NY 14623

Web: <http://www.icuiti.com>
Phone: (585) 240-8000
Fax: (585) 240-8003

Sales

Email: info@icuiti.com
Phone: (800) 436-7838

Support

Email: support@icuiti.com
Phone: (585) 427-8604

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The products, specifications, and other content of this
User's Guide are subject to change without notice.

Important Safety Instructions

Follow these safety instructions when using or handling your Icuiti Video Eyewear to reduce the risk of fire, electric shock, and injury to persons and property.



1. READ ALL OF THE INSTRUCTIONS AND SAFETY INFORMATION PROVIDED BEFORE USING THIS PRODUCT.
2. Use the product only for its intended use, as described in the manual.
3. Close supervision is needed when this product is by or near children.
4. Children under the age of seven (7) are still learning to focus and track with their eyes. Their vision is still immature. For these reasons, THIS PRODUCT SHOULD NOT BE USED BY CHILDREN UNDER THE AGE OF SEVEN (7).
5. A very small portion of the population may experience epileptic seizures when viewing certain kinds of flashing lights or patterns that are commonly present in our daily environment. These people also experience seizures while watching some kinds of television pictures or playing certain video games including the use of display systems, such as this product. Consult a physician if you have any epileptic condition or if you experience any of the following symptoms while using this device: altered vision, muscle twitching, other involuntary movements, loss of awareness of your surroundings, mental confusion, and/or convulsions.
6. Immersive video, whether viewed on a regular TV, in a movie theater or an Icuiti video display, can potentially have adverse effects on the user including motion sickness, perceptual after effects and disorientation, and decreased postural stability and eye strain. Take frequent breaks to lessen the potential of these effects, as is commonly suggested for other items, such as keyboards and computer monitors, that you may tend to fixate or concentrate on. If your eyes show signs of fatigue or dryness or if any of the above symptoms is noted, immediately discontinue use of this device and do not resume using it for at least 30 minutes after the symptoms have subsided.
7. Always be aware of the world around you. This product will immerse you in realistic sights and sounds, possibly causing you to forget about the real world around you and the threats to your well being and the well being of others that may be present. DO NOT use this product near stairs, balconies, or other things that can be tripped over, run into, knocked down or fallen over. This product should only be used while you are seated and never while using sharp or potentially dangerous objects, operating any form of mechanical device, or performing any act that normally requires you to see what you are doing.
8. This product may be tethered to a power outlet and cables may extend between components. Be careful that the cords do not tangle around you or pose a potential threat to the safety of others.
9. Do not allow anything to rest on the power cord and place the power cord so that it will not be walked upon or possibly tripped over.
10. Do not set any part of your Icuiti product on a heating register, over a radiator or on top of electrical components that may cause the Icuiti product to be exposed to excessive heat.
11. Do not use while wet or while standing in water.

12. Do not use this product near water (for example, near a shower, bathtub, sink or swimming pool).
13. Never insert objects of any kind, other than those specifically approved for that use by Icuiti, into any connectors, ports, slits or other openings in the product.
14. Unplug the product from any external power source before cleaning and do not use any aerosol or liquid cleaners.
15. Do not disassemble this product. If service work is required, contact Icuiti using the Support contact information shown near the front of this manual.
16. Do not overload any wall outlets, extension cords of other power supply source (such as a USB computer connection).
17. Avoid using, while connected to an external power source, during an electrical storm. Use a surge protector to protect the product from possible damage.
18. Do not pull or yank on the cable, kink the cable or tie it in a sharp or tight knot. Do not hang the product or allow it to be suspended by its cable. Cables damaged by such actions are not covered by the product's limited warranty.
19. Do not leave a static image displayed for a prolonged period of time. If a static image is displayed continuously for a long period of time, that image may stick on the display—a phenomenon known as “image stick”. This condition is not permanent, but may require a considerable amount of operational display time to dissipate, dependent upon the degree of image stick. 30 to 60 minutes of continuous motion display will eliminate most image stick effects.
20. Do not drop, strike, or cause any portion of the product to be struck or shaken aggressively. Such actions may damage the product and void your warranty.
21. Save these instructions.

Unplug the product from all external power sources immediately if:

- The power cord or USB cord is damaged or frayed.
- Liquid has been sprayed, splashed or poured on the product.
- Any component of the product has been dropped or damaged.
- The product exhibits any distinct change in performance.

Introduction

Congratulations on purchasing your Icuiti M920-CF Video Eyewear!

The Icuiti M920-CF is a commercial grade Monocular Video Eyewear system that enables you to view high quality images residing on a Pocket PC handheld (PDA). It connects to a PDA through a Compact Flash interface and provides a VGA quality display at 640 x 480 pixels.

Package Contents

Your Icuiti M920-CF Video Eyewear system contains the following:

M920-CF Video Eyewear

Software Disc

Documentation Set:

 User's Manual

 Warranty Registration Card

 Lens Cloth

M920-CF Software

Your M920-CF comes with complimentary software that enables you to control your M920-CF through your PDA in a variety of resolutions.

Software Installation

The software that is supplied with your M920 video system is integrated into one installation package. This installation will allow you to select only the software that is essential to your needs. Each package has its own installation and can be located on the Icuiti Installation CD.

The following installation instructions are common to all of the software packages.

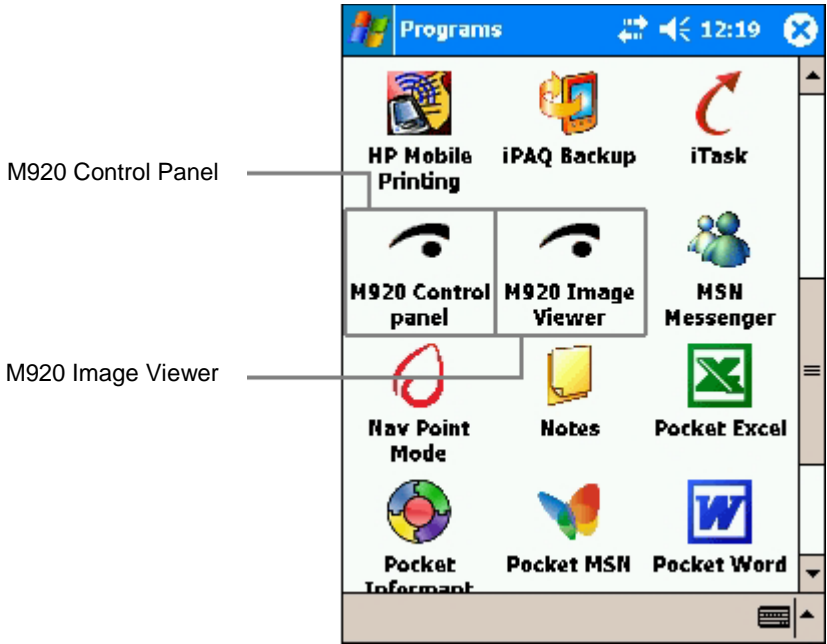
- ❶ If your M920-CF is already connected to your PDA, disconnect it before attempting to install the software.
- ❷ Connect your PDA to a desktop or laptop PC equipped with ActiveSync.
- ❸ Run the Setup program located on the installation CD, follow the instructions provided onscreen.

Note: the setup program will run automatically or You can run the Setup program directly from the Icuiti Installation CD.

- ❹ Connect your Icuiti Video Eyewear, by inserting its Compact Flash card into your PDA.

Note: The Icuiti Video Eyewear supports hot plugging—it can be connected while your PDA is running.

Your Icuiti software will be available through your PDA's Programs List. It can be run with or without your Icuiti Video Eyewear connected.



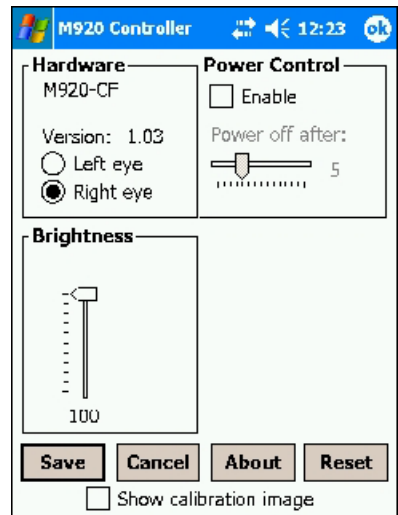
M920 Control Panel

The Icuiti Control Panel application enables the configuration of your Video Eyewear, allowing you to adjust for left or right eye viewing, brightness and Power control settings.

The Icuiti Control Panel can be launched through the Programs screen or by pressing the Control Panel's icon displayed in the lower right corner of your Pocket PC screen. This icon automatically appears, when the Video Eyewear is connected to the PDA.

Hardware

The Hardware panel identifies the model and version of Video Eyewear currently



connected to your PDA.

You can configure your Video Eyewear for left or right eye viewing by selecting the appropriate radio button.

Power Control

Your Video Eyewear draws its power from your PDA. In order to maximize the PDAs' battery life, the Video Eyewear can be configured to automatically power down if no video display activity is detected for a specified period of time.

This feature is activated by selecting the "Enable" checkbox in the Power Controls group. The idle duration required for it to be invoked is set by dragging the slider left or right. The number of minutes this represents is displayed to the right of the slider bar.

Note: The Power Control is affected by Video Eyewear activity—not Pocket PC activity.

Brightness

A vertical slider is provided for adjusting the brightness of your Video Eyewear. A numeric value is displayed below the slider. 0 representing the minimum brightness level, 100 representing the maximum brightness level.

Saving Changes

Press the "Save" button to retain any configuration changes or "Cancel" to exit the Control Panel without saving changes. A "Reset" is also provided to quickly restore the default settings.

M920 Image Viewer

The Icuiti Image Viewer empowers you to view images in full VGA quality, in their original resolution, through your Video Eyewear.

It supports the following image file formats:

Jpeg: .jpg, .jpeg, .jpe

Bitmap: .bmp

Gif: .gif

MonoChrome:.bxm, .2bp

Convenient “Prev” and “Next” buttons allow you to cycle through multiple images in the currently selected folder and file format.

Zoom in (+) and zoom out (-) buttons allow you to zoom in for greater clarity or zoom out for a more global perspective.

You can view images of virtually any size, limited only by your Pocket PC's memory. When viewing large images, greater than your available viewing area, you can pan a viewable area around your image. Tap the area of the graphic you would like displayed and the viewer will re-center at that location. A flashing rectangle on the Pocket PC screen indicates the current displayed image area as seen through the Video Eyewear.

File Menu

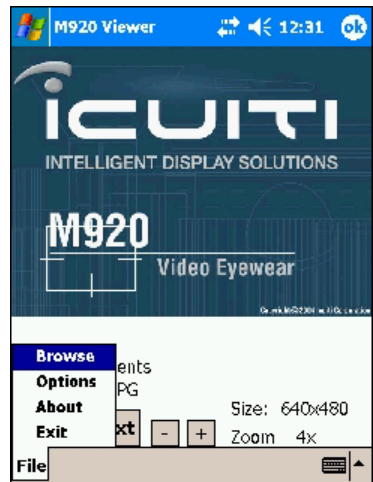
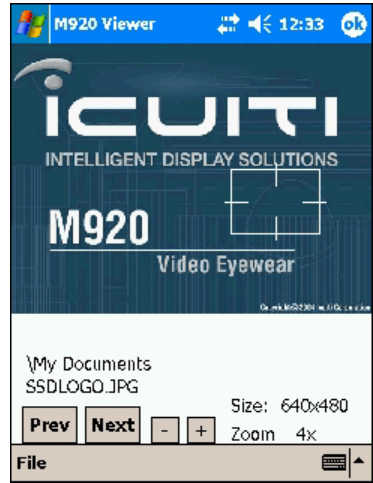
The File menu provides access to “Browse”, “Options”, “About” and “Exit” commands.

Choosing the “Browse” command enables you to select and view files from the various folders on your Pocket PC. The next time you open the Image Viewer program, it will automatically display the last image that was displayed from the previous shutdown.

The “Options” command enables you to control how images are displayed.

Off: With this option selected, you must run the Image Viewer in order to view images on your Video Eyewear.

M920 Viewer: With this option selected your Video Eyewear becomes the standard Pocket PC image viewer. Images can be viewed by clicking on them through the file explorer, email inbox or other directory viewing applications.



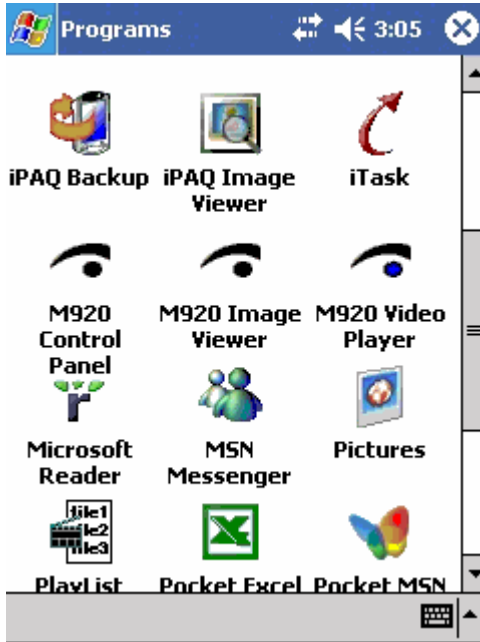
Pocket PC Viewer: This option is similar to "M920 Viewer" except the Video Eyewear will utilize the Pocket PC image viewer, and to the best of its ability, display the entire image the standard image viewer is viewing.

"*About*" provides Image Viewer's version information.

"Exit" This command is an alternate method of exiting the viewer.

M920 Video Player

The M920 Video Player icon should appear as below when both the player and the M920 Drivers are installed correctly. Direct access to the player can be achieved by selecting the “M920 Video Player” icon.

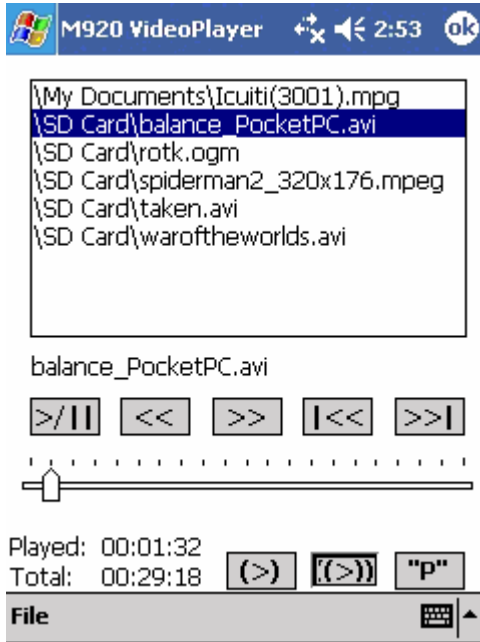


The M920 Video player allows the user to play pocket pc videos on the M920's Video display. The player supports the following formats:

.mpg,.mpeg,.avi,.ogm.

The videos must be compatible with the PocketPC version of these file types.

Video Players' "Main Panel"



Files View Area

The Video player has a refresh function that will search for all video files that are supported and exists on the PDA. The files that are found will appear in the list that is presented on the main panel. The file that is currently selected will be displayed just below the files view area.

Track Controls

1. ">/||" This is the play/pause button; performs as is stated.
2. "<<" This button will rewind the track 2 seconds from the current position.
3. ">>" This button will fast forward the track 2 seconds from the current position.
4. "|<<" This button will stop the current track and select the previous track from the Files list.
5. ">>|" This button will stop the current track and select the next track from the Files list.
6. The Track Slider can be selected and dragged to any point in the currently selected track. As well, by tapping on the left of the slider position the track

will rewind a number of seconds to accommodate the new sliders position. Tapping on the right will fast forward a number of seconds to accommodate the new slider position.

Track Time

The current time the track is positioned at is displayed to the right of the "Played:" field. This is in **hours:minutes:seconds** format. Below the time played field is the total time the current track will play if started from the start position, in **hours:minutes:seconds** format.

Loop List Controls

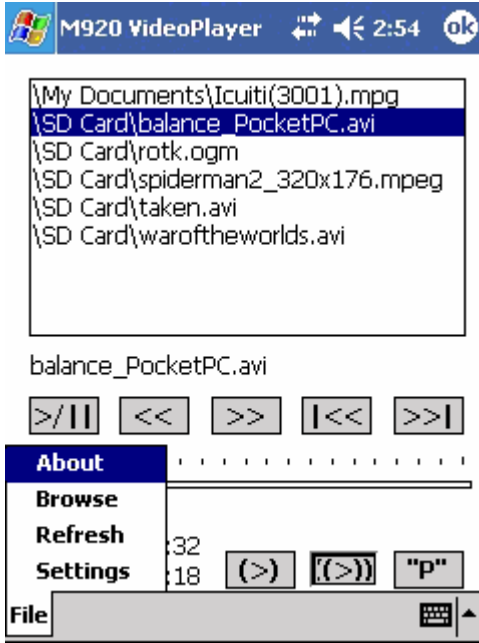
1. "**(>)**" This button controls the looping track function. When depressed, the Video player will loop on the track that is currently selected. This button causes the Loop List button to be ignored.

2. "**(>>)**" This is the Loop list button and controls the looping of all files in the list, or the current tracks defined directory. See "Settings Control" for further details.

Power saving mode

"**P**" The Power Save button will place the PDA into a power down state such that only the essential power that is required to playback video to the M920 will be enabled. This will allow for a longer playback time when all options are setup and the user is only playing back video. The PDA's Power Button will restore power to the PDA and return to the Video players Main control window.

Video Players' "File Menu"



The File menu provides access to "Settings", "Refresh", "Browse" and "About" commands.

"About"

The About box will give the user feedback on the players version as well as information on the origins and the development of the Video Players processing capabilities.

"Browse"

Choosing the "Browse" command enables you to select files from the various folders on your PDA. This will allow the user to select specific tracks from specific locations.

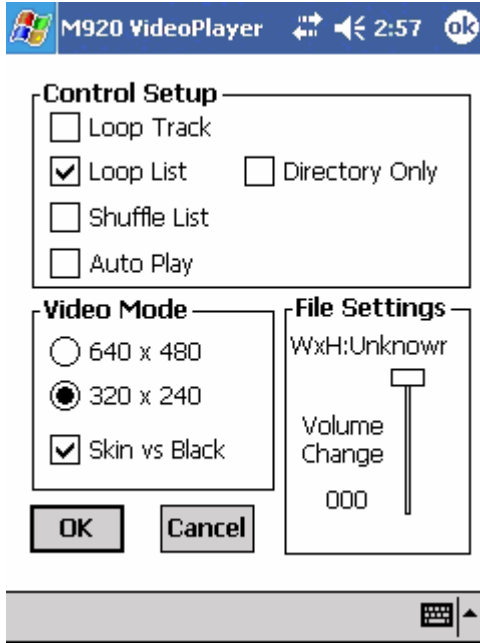
"Refresh"

The "Refresh" command enables the user to reacquire any video files that may be updated on the PDA via "Removable media", "Active Sync" or any other method employed to get video media onto the PDA. The newly found files will be displayed in the Files View area.

"Settings"

The "Settings" command will bring up the settings panel which will allow the user to reconfigure the Video Player in other modes and configure options on a per video file basis. See the next section for further information.

Video Players' "Settings Control"



The "Settings" control panel allows the user to setup the Video Player for the currently desired settings during playback of all video tracks.

Control Setup

"Loop Track"

This option is the same as the "(>)" loop track button supplied on the main panel of the Video player screen. It takes precedence over the "Loop List" button.

"Loop List"

This option as well, is a mirror of the "(>>)" loop list button supplied on the main panel of the Video player screen. The "Loop Track" button again overrides this button.

"Directory Only"

This option allows the user to setup the player to only loop on the tracks in the currently selected Directory. The Directory is defined by the current track that is playing. When the "Loop List" button is active and the "Loop Track" button is inactive, the Player will loop on only those tracks that exist in the same directory as the currently playing track. If this option is not selected then all

tracks that are listed in the View Files area will be looped when the "Loop List" button is active.

"Shuffle List"

This option will randomly select the next track in the currently viewed files list. Only when the "Loop List" button is active.

"Auto Play"

This option, when enabled will place the Video player into automatic "Refresh" mode. At a defined rate the player will auto detect the presence of all removable media, when the media is removed and reinserted two functions will be performed?

1. The Files viewed list will be refreshed.
2. The first track found on the newly inserted media will start playing from the beginning of the track.

This function allows the user to keep the PDA in power down mode while inserting new media to be viewed.

Note: This option, when enabled will cause the player, upon reloading to startup the last track that was playing when the player was shut down.

Video Mode

The player will operate in one of two modes.

640x480: This mode allows for viewing of high-resolution videos.

320x240: This mode is a more compatible PDA mode that is designed for higher playback rates from your PDA device. Most video files designed for the PDA environment are played back in this mode. This is the default startup mode for the Video player.

Skin vs Black

When not checked the player will display a black background during track playback. When checked a standard Skin file will be painted onto the backdrop of the display screen while playing any videos from the Files list. This file can be overridden on a per track basis. Provided the currently selected track has a .jpg file of the same name:

Example:

`\SD Card\VideoFile.MPG`

`\SD Card\VideoFile.JPG` ← this file becomes the new skin file.

NOTE: You must have the Skin vs Black checkbox selected prior to selecting the video track from the View Files list.

File Settings

This group box will display the currently selected tracks dimensions and attenuated sound settings. The slider represents a percentage decrease in volume from the master system volume that is applied to the current track. Not all video tracks will have the same level of volume designed into the track. This option allows the user to apply a change in volume between each track such that no one track will be greater in volume than the others. The setting is stored in a configuration file by the same name as the current tracks.

Example:

\SD Card\VideoFile.MPG

\SD Card\VideoFile.CFG ← Stored volume settings for this track.

Ok

When all of the settings for this track and the player are setup the user selects ok to save these settings. When the player shuts down all settings will be remembered.

Cancel

Selecting this button will restore all settings to their previous state prior to entering the "Settings Control" panel.

Nyditot Virtual Desktop

This award winning utility is provided free of charge, as a bonus with your Icuiti Video Eyewear. It provides a virtual display, of arbitrary size and orientation that can be displayed on your Video Eyewear.

Complete documentation on the Nyditot Virtual Desktop is installed on your PDA when its installation program is run. In addition, detailed information on this product and its features is available on the Nyditot website at <http://nyditot.com>.

To enable the Virtual Desktop software you must select the Video Eyewear option under the "External Display" tab, See the Nyditot documentation for the latest options.

Note: No additional registration fee is required for your copy of Nyditot Virtual Desktop.

All technical support questions for the Nyditot Virtual Desktop product should be directed to Nyditot, not Icuiti Corporation. You can contact their technical support services by going to <http://nyditot.com> and then click on the "Support" button.

Using Your Video Eyewear

Your Video Eyewear is a monocular display product, meaning it has a single video display. This display can be positioned in front of either your right or left eye—whichever is your dominant eye.

Determining your Dominant Eye

It is relatively easy to determine which eye is your dominant eye.

1. Place your hands together, leaving a small $\frac{1}{2}$ to $\frac{3}{4}$ inch opening between your thumbs.
2. With both eyes open, look through the open triangle at a distant object.
3. Close your left eye. If the object remains in view, you are right eye dominant. If your hands appear to move off the object and move to the left, then you are left eye dominant.



When you wear your Video Eyewear, you will want to position the monocular display screen over your dominant eye.

If the Video Eyewear display is placed over your other eye, the one that is not dominant, you will have to close your dominant eye to focus on the video display. When the video display is positioned over your dominant eye, you will discover that you can focus on the display with both eyes open, or view past the display with minimal visual interference. Your ability to focus on and past the display will also improve with a little practice.

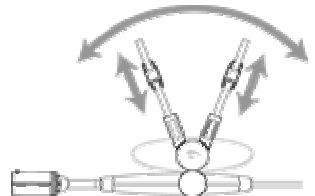
Wearing Your Video Eyewear

Your Video Eyewear is highly adjustable. It can be worn by people without spectacles or over prescription glasses.

The first step in adjusting your Video Eyewear is to position the monocular display on the side of your dominant eye. This is done by loosening the thumb screw in the center of the display arm, directly below the head bands, about $\frac{1}{8}$ th of a turn and flipping the display arm over 180°.

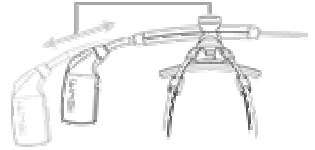


Next, you'll want to adjust the headband springs—the two steel strips that extend over your head when the Video Eyewear is worn. These



headbands can be adjusted for length as well as spread apart for a comfortable and stable fit.

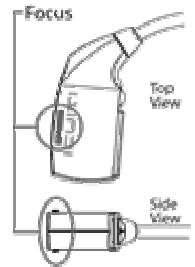
Once you have the Video Eyewear comfortably positioned, you can loosen the black Display Arm adjustment screw and slide the display extension arm in or out to achieve a length that positions the monocular display in front of and close to your dominant eye. Additional adjustments can also be made by bending the flexible display extension arm. This will enable you to make vertical adjustments as well as small adjustments to reposition the display closer, further away from, or below your eye.



Note: Positioning the display closer to your eye maximizes the perceived size of the display screen.

Focus Adjustment

A small wheel on the top of the display housing enables you to make small focal adjustments from approximately +2 to -6 diopters.



Caring for Your Video Eyewear

Your Icuiti Video Eyewear is virtually carefree, requiring only occasional cleaning with a soft dry cloth. Do not use any liquids, or even your breath, to clean the Video Eyewear's display panel cover or optical assembly. **Use only approved optical lens cleaning pads**, such as those designed for cleaning camera lens—available from www.icuiti.com.

Take care when handling your Video Eyewear's cable. Do not kink, fold, or tightly bend the cable connecting the Video Eyewear and Compact Flash card as it may damage the cable and void your warranty.

Your Icuiti Video Eyewear is not designed for use in dusty or wet environments. Excessive dust or moisture, such as rain, may infiltrate the unit and diminish its display quality.

When not in use, the Video Eyewear must NOT be exposed to temperatures outside of the range - 20°C to 40°C. When in use, the device must NOT be exposed to temperatures outside of the range 0°C to 40°C.

Video Eyewear Usage

We recommend that you take frequent breaks, every 30 minutes where practical, while using your Video Eyewear to prevent eye strain—as is also recommended when using a traditional computer monitor. The immersive nature of a Video Eyewear experience can produce intense concentration and reduced blinking, leading to dryness of the eyes and other symptoms of eye strain. Limit your maximum session time to that of a standard movie (approximately 2 hrs.) or less.

Specifications

Power:	power (approx, 850mW) drawn from the Compact Flash slot no batteries required
Display Panel:	Active Matrix LCD with white LED backlight
Display resolution:	640 x 480 true color optics provide 26° field of view image appears as if projected at a distance of 11 feet